

# Priorities for the 21<sup>st</sup> Century

## A Strategic Plan for NOAA's Satellite and Information Service For FY 2003-2008 and Beyond

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Environmental Satellite, Data, and Information Service

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## Preface

We thank all who participated in the NOAA Strategic Planning process in Fiscal Year 2003, either in commenting on the NOAA Strategic Plan or on the Line Office Strategic Plans. The new planning documents reflect NOAA's mission to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. We have begun to implement the goals of the strategic plans by organizing according to Goal Teams and programs.

The NOAA Strategic Plan, as well as the Line Office Plans, will be revised in Fiscal Year 2004 to reflect the new Goal Team and program structure. This new operational structure will allow better integration and alignment of our activities within our existing organizations. Stakeholder meetings and forums are being planned for the beginning of the year and we encourage your participation. As always you may contact my office for information by calling 301-713-1622 or by emailing us at [Strategic.Planning@noaa.gov](mailto:Strategic.Planning@noaa.gov).

Joyce Wood, Director  
Strategic Planning Office

## Foreword from the Assistant Administrator:

I am pleased to present the National Environmental Satellite, Data, and Information Service (NESDIS) Strategic Plan. This Strategic Plan builds on a strong base of world-class satellite environmental and information services for the nation and for the international community. Our work to support NOAA's mission goals is accomplished through a set of overarching and enabling principles allowing us to be more flexible, adaptable, and integrated.

## Overarching Principles

- **Customer Service:** Responsiveness to the needs and requirements of our constituents, stakeholders, and customers is a guiding NESDIS core value. Effective outreach enables our customers to keep us current with their needs and better use our products and services to make sound decisions affecting the environment, economy, and national security.
- **Improved Data Utilization:** Realizing the full benefits of satellite and ground-based data and information management systems increases return on our resources and more directly focuses on user needs and requirements. Improved data integration and utilization require development of new algorithms, enhanced data assimilation, development of long-term data sets, expanded applications, improved telecommunications, and increased observations from data-sparse areas.
- **Multi-disciplinary Systems Approach:** A multiple disciplinary approach toward meeting requirements for observing systems and data management helps to maximize the return on investment. Use of multi-disciplinary systems and science also allows for more integrated solutions. Examples for the future include: carbon cycle monitoring; salinity measurement and assimilation; hyperspectral technology and applications; wide-swath satellite altimetry for coastal applications and forecasts; land and water measurements for monitoring the hydrological cycle; and improved radar systems. The coordination of new requirements is done in the context of NOAA's four mission goals, which are described in this document.

## Enabling Principles

- **End-to-end Planning:** To meet the requirements of user communities, new observing systems must be deliberately designed and funded to include end-to-end services from taking calibrated observations, data processing, access, and long term stewardship (archive). This planning also includes product development and validation, product distribution, assimilation, integration of diverse networks, integration of ground and space systems, and customer support.
- **National Civil Space Architecture:** Leveraging from our efforts to develop a NOAA observing system architecture, and our critical role in implementing the President's new Commercial Remote Sensing Space Policy, NOAA is poised to take the lead in the interagency group of the Committee on Environment and Natural Resources. This committee will develop an architecture for the Nation and a 10-year plan for implementing observations in accordance with national requirements.
- **Research to Operations Transition:** Critical to bridging the gap from research to operations is to develop and implement an aggressive plan to transition the Research and Development (R&D) satellites of other agencies to operations at NOAA. This requires formalizing road maps to continuous infusion of new science and technology and removing barriers to acquiring advanced satellite technology opportunities to benefit the Nation. Such R&D transition programs must also include investment in applications development, data utilization, infrastructure support, and advanced customer support activities.

- **Design More Efficient Satellite and Information Systems:** The robustness of our future observing and information systems is based on sound investments in technology and applied research that allows continuous improvements and new capabilities at an affordable cost.
- **Partnerships:** A truly integrated global observation network exceeds the capability of any one country or any one agency. As a result, international and interagency cooperation is necessary to address duplication and omission of existing and planned environmental observing systems. A first step toward building an integrated global observing system is to garner support from senior level government representatives to promote the value of a global Earth observation system that integrates space-based and in situ observations. U.S. led efforts such as the July 2003 Earth Observations Summit demonstrate our commitment to environmental stewardship and the promotion of sound science for the benefit of all nations of the world. Academic and industrial partners are also critical to our planning and implementation of the necessary range of observing and data management activities.

Finally, I want to recognize that the principles and goals contained in this document are possible only with the dedication and commitment of every member of the NESDIS family. I salute their teamwork and service to the Nation.

Gregory W. Withee  
NOAA Assistant Administrator for Satellite and Information Services

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# **New Priorities for the 21<sup>st</sup> Century: One NOAA**

## **OUR VISION**

To be the source for the world's most comprehensive and easily accessible environmental products and information.

## **OUR MISSION**

To provide timely access to global environmental data and information services from satellites and other sources in support of the larger NOAA mission.

## **OUR CORE VALUES**

People, Integrity, Excellence, Teamwork, Ingenuity, Science, Service and Stewardship.

## **BENEFITS TO THE NATION**

NOAA's Environmental Satellite, Data, and Information Service (NESDIS) touches nearly all sectors of society in some way. NOAA observing systems provide access to global environmental data and information services from satellites and other sources to promote, protect, and enhance the Nation's economy, security, environment, and quality of life. NESDIS provides the resulting information to both NOAA and non-NOAA agencies, allowing them to produce additional products and services, such as severe storm warnings, short- and long-term weather forecasts, climate analyses, and the provision of satellite-aided search and rescue services. The NESDIS Team contributes to the national economy by providing environmental data, which support resource management in many areas, such as energy, water, global food supplies, and other economic and environmental resources. Our environmental satellite observations are an important contribution to U.S. national security, providing military users real-time and near real-time information for aircraft, ships, ground forces, and facilities around the world.

# Mission Goals

NOAA's Satellite and Information Service supports the NOAA mission, with a focus through 2008, on four overarching NOAA Mission Goals:

- Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management.
- Understand climate variability and change to enhance society's ability to plan and respond.
- Serve society's needs for weather and water information.
- Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation.

A service-oriented NOAA Line Office, NESDIS provides requirements-driven environmental observations, life-cycle data stewardship, and responsive environmental information services to NOAA users. To fulfill its responsibilities, NESDIS acquires and manages the Nation's operational environmental satellites, provides data and information services, and conducts related research to enhance access to and use of environmental data and information. Through NOAA's polar-orbiting and geostationary satellite systems, NESDIS collects, processes, and delivers to NOAA's users near real-time satellite observations of national and global ecosystems. Where NOAA's operational satellite systems are not sufficient, NESDIS provides for the acquisition of international satellite observations, non-NOAA federal satellite observations (for example, NASA and DoD), and commercial imagery.

## ORGANIZATION OF THE MISSION GOALS

Following the NOAA Strategic Plan, each mission goal is presented in the NESDIS Strategic Plan with a background description. As with the NOAA plan, this Strategic Plan establishes at a high level the approaches we will take to establish accountability for results, and specific measures against which we will gauge our success.

Each of the mission goals is organized according to the mission strategies and measures of success that reflect NOAA's general daily activities. The applicable NOAA strategies are:

- Monitor and Observe the land, sea, atmosphere, and space and create a data collection network to track Earth's changing systems.
- Understand and Describe how natural systems work together through investigation and interpretation of information.
- Assess and Predict the changes of natural systems, and provide information about the future.
- Engage, Advise and Inform individuals, partners, communities, and industries to facilitate information flow, ensure coordination and cooperation, and provide assistance in the use, evaluation, and application of information.

## **MISSION GOAL 1. PROTECT, RESTORE AND MANAGE THE USE OF COASTAL AND OCEAN RESOURCES THROUGH ECOSYSTEM-BASED MANAGEMENT**

Increasing pressures on the Nation's coastal and ocean resources create a growing requirement to streamline the processes that lead to timely and accurate ecosystem management and public policy decisions. Decision-makers require the best available scientific data to formulate sound policies affecting resource management, utilization, and conservation.

Daily marine ecosystem relevant products produced by the NESDIS-operated NOAA CoastWatch include sea surface temperature, chlorophyll concentrations (indicative of biological activity levels), water clarity (turbidity) and meteorological parameters such as surface winds. These products are actively used in fisheries and coastal wastewater management activities. Terrestrial ecosystem products include vegetative health and surface water availability indices.

NESDIS facilitates the use of satellite and other ecosystem observational data by providing Web-enabled access to distributed sources of data through Web portals and gateways. These gateways, now being deployed by NESDIS's National Coastal Data Development Center, allow multiple sources of data to be accessed by users through single point-of-entry Web sites, thus simplifying the user's data assembly and analysis tasks.

Ecosystem change detection in critical ecosystems, such as coral reefs, is supported through the development of ecosystem baseline conditions. Aggregated spatially-enabled data sets, systematically analyzed using available data from the present back to earliest instrumented records, are the base. These baselines can then be used to improve the timely detection of ecologically significant changes over broad regions using satellite observations through programs such as Coral Reef Watch, and over pre-historic times.

### **OUTCOME MEASURES FOR MISSION GOAL 1:**

- Increased number of coastal and marine ecosystems maintained at a healthy and sustainable level.
- Increased socioeconomic value of the marine environment and resources (such as seafood, recreation and tourism).

### **STRATEGIC OBJECTIVES**

#### **Goal-Wide Ecosystem Strategy:**

The most significant level of support is provided by NESDIS-managed environmental satellite programs through which environmental satellite observations are collected, processed, and used to generate observation-based products. The second principal support area includes the life-cycle archival, management and assessment of NOAA's ecosystem-related environmental data holdings. The third area supports the assessment of future observational requirements and the incorporation of those requirements into future upgrades to NOAA environmental satellite and data management systems.

All of these provide and will continue to provide for a NESDIS strategy which will support:

- Increasing the number of regional ecosystems identified and monitored with agreed to indicators of ecosystem health.
- Increasing the number of operational models linking climate/weather/atmosphere with ecosystem/hydrology to assess and predict natural and human-induced changes in the ocean and coastal environment.
- Increasing number of coastal, ocean, and Great Lakes areas (including coastal

watersheds) with Federal, state, and local government or non-governmental management plans using ecosystem best management practices and approaches.

#### **STRATEGIES AND MEASURES OF SUCCESS:**

**Monitor and Observe:** NESDIS will ensure the availability of value-added, cost-effective global Earth-observing systems, integrating satellite, airborne, and in-situ (surface: land and ocean) assets that provide critical data and information needed to support NOAA's goal of improving mission performance through:

- Increased area covered and number of ecological conditions monitored by state-of-the-art observation systems and platforms that provide necessary information for NOAA's stewardship responsibilities

**Understand and Describe:** NESDIS will realize the full potential of current and future satellite, airborne, and in-situ based data and information management systems to respond to customer requirements to support NOAA's goal of improving mission performance through:

- Increased number of techniques and tools that can be used to restore and protect ocean, coastal, and Great Lakes resources.

**Assess and Predict:** NESDIS will improve and expand products, techniques, and services to increase availability, reliability, and timeliness of observations to improve NOAA's mission performance through:

- Increased number and accuracy of forecasts of significant ecological events and trends (such as harmful algal blooms, coral bleaching, and population shifts).

**Engage, Advise and Inform:** NESDIS will ensure that customers have access to data, information, and products through a variety of means such as real-time and near-time digital access to new and archived historical observations and data using the Internet and Web-enabled E-Commerce systems, magnetic media (tape and disk), paper copies, peer reviewed journal articles and published papers, conferences, and partnerships with educational institutions to support NOAA's goal of improving mission performance through:

- Increased percentage of coastal communities and coastal inhabitants aware of – and acting appropriately – to minimize their impacts on coastal, ocean and Great Lakes resources.

## **MISSION GOAL 2. UNDERSTAND CLIMATE VARIABILITY AND CHANGE TO ENHANCE SOCIETY'S ABILITY TO PLAN AND RESPOND**

NESDIS provides critical data, information, products, assessments, and services to ensure that NOAA meets this goal. NESDIS maintains the world's largest archive of climate-related data and information spanning the ice age to the Space Age. NESDIS operates the Nation's operational satellite observing system through which essential data are derived to understand climate variability and change. NESDIS also operates the Nation's Climate Reference Network, providing reference quality data for surface temperature and precipitation monitoring. Data and information from these observing systems are used

along with other climate-related NOAA and non-NOAA observing system data to construct the most reliable records possible regarding local, regional, national, and global climate variability and change. Data and products from NOAA's archives are employed by millions of users each year spanning government, academia, private citizen, and private sector users including agribusiness, construction, engineering, energy, fisheries, health, insurance, landscape architects, law, manufacturing, news media, recreation, tourism, retailing, transportation, water, and utilities – all climate-sensitive activities.

NESDIS acts as the Nation's official scorekeeper of climate variations and changes, including extreme weather and climate events. The data and information made available by NESDIS are developed into effective climate adaptation strategies. NESDIS also calculates the official climatologies and normals used by the Nation to anticipate and effectively minimize the impacts of climate variations and changes and maximize the benefits of sound planning and policies. NOAA's ability to detect and predict climate events such as El Nino and La Nina have dramatic impacts on agriculture, water resources, energy, fisheries, and ultimately all U.S. consumers.

A new observing system is now being deployed, the U.S. Climate Reference Network (USCRN). NESDIS is working with its partners in NOAA Research and NOAA National Weather Service, the Regional Climate Centers, and the Nation's State Climatologists to ensure the highest quality reference system is fully operational within the next few years. The key objective of the USCRN is to provide a traceable, documented standard reference point for all U.S. measurements of surface temperature and precipitation.

The Nation's archive of observed and analyzed environmental data is a precious and irreplaceable resource. The volume and rate of growth of data will dramatically increase as new observing capabilities are deployed. Effective utilization of the data requires the ability to scientifically manage these climate records and provide relevant utility to a wide range of customers. In response to this challenge NESDIS has embarked on a new approach to data management, Scientific Data Stewardship (SDS). SDS encompasses the end-to-end process, addressing the need to effectively preserve and exploit the full scientific value of environmental data. Scientific Data Stewardship is characterized as maintaining "scientific integrity and long-term utility" of climate records through monitoring, improving quality, and the extraction of select key parameters from new observations and historical records. Successful implementation will ensure maximum use of NOAA's environmental data, now and in the future.

#### **OUTCOME MEASURES FOR MISSION GOAL 2:**

- Increased use and effectiveness of climate observations to improve long-range climate, weather, and water predictions
- Increased use of the knowledge of how climate variability and change affect commerce

#### **STRATEGIES AND MEASURES OF SUCCESS:**

**Monitor and Observe:** NESDIS will ensure the availability of value-added, cost-effective global Earth-observing systems, integrating satellite, airborne and in-situ (surface: land and ocean) assets that provide critical data and information needed to support NOAA's goal of improving mission performance through:

- Increased number of long-term observations collected, archived, available, and accessible where random errors and time-dependent biases have been minimized and assessed.

**Assess and Predict:** NESDIS will realize the full potential of current and future satellite airborne, and in-situ based data and information management systems to respond to customer requirements and support NOAA's goal of improving mission performance through:

- Improved skill of climate variability forecasts.
- Increased number, accuracy, and regional specificity of U.S. climate, water and coastal resource products.
- Reduced uncertainty regarding long-term climate predictions, as measured through

- improvements to climate change models and increases in the range of their application.
- Increased involvement of NOAA researchers and use of NOAA scientific results in national and international assessments.
- Reduced uncertainty in the estimation of the United States terrestrial carbon sink.
- Increased number of new indicators of climate impacts on marine ecosystems.

**Engage, Advise and Inform:** NESDIS will ensure that customers have access to data, information, and products through a variety of means such as real-time and near-time digital access to new and archived historical observations and data using the Internet and Web-enabled E-Commerce systems, magnetic media (tape and disk), paper copies, peer reviewed journal articles and published papers, conferences, and partnerships with educational institutions to support NOAA's goal of improving mission performance through:

- Increased volume of NOAA climate data and information used by NOAA customers.

### **MISSION GOAL 3. SERVE SOCIETY'S NEEDS FOR WEATHER AND WATER INFORMATION**

Observations and dissemination of data are critical to weather information services, thus NESDIS' role in collecting, processing, distributing and archiving environmental data must continue to evolve to meet the national requirement for timely, accurate weather data and forecasts.

Recently, the intersections of the weather and water cycles have become of increasing interest to emergency managers, resource managers, U.S. and international decision makers, and the general public. Water is a critical driver for most climate processes. It contributes to the evolution of weather systems, causes floods and droughts during extreme events, and is the natural resource that needs the most effective management.

NESDIS satellite and information services supply observational data to both weather and water forecast models to gain a better understanding of the global weather and water cycles. These data include space-based and in-situ observations of weather and water parameters such as clouds, winds, precipitation, wave height, vegetation and soil moisture, along with associated metadata, which are distributed as data files and imagery products. The NOAA National Data Centers that NESDIS manages provide climatology, status reports and assessments, data access and archive for longer-term studies and permanent availability. In conjunction with the National Weather Service, the use of these NESDIS data ultimately leads to more accurate weather and water forecasts and products for public uses and resource management

#### **OUTCOME MEASURES FOR MISSION GOAL 3:**

- Increase accuracy and amount of lead time by category or storm type (for example, hurricanes).
- Increased satisfaction with and benefits from NOAA information and warning services, as determined by surveys and analysis of emergency managers, first responders, natural resource and water managers, public health professionals, industry, government and the public

#### **STRATEGIES AND MEASURES OF SUCCESS:**

**Monitor and Observe:** NESDIS will ensure the availability of value-added, cost-effective global Earth-observing systems, integrating satellite, airborne, and in-situ (surface: land and ocean) assets that provide

critical data and information needed to support NOAA's goal of improving mission performance through:

- Increased observations obtained and used from partners, both international and domestic.
- Increased percentage of observations archived, available, and accessible.
- Increased number of new multi-use observing systems deployed.
- Improved effectiveness of NOAA's observing systems.

**Understand and Describe:** NESDIS will realize the full potential of current and future satellite, airborne, and in-situ based data and information management systems to respond to customer requirements to support NOAA's goal of improving mission performance through:

- Shortened cycle times from research (government and academic) to operations (models, technology, and techniques) through the use of test beds and other methods.
- Increased number of new research findings and progress toward their implementation in NOAA operations.

**Assess and Predict:** NESDIS will improve and expand products, techniques, and services to increase availability, reliability and timeliness of observations to support NOAA's goal of improving mission performance through:

- Increased volume of forecast and warning information formatted to readily clarify the uncertainty of an event (for example, space weather, air quality, water and weather forecasts).

**Engage, Advise and Inform:** NESDIS will ensure that customers have access to data, information, and products through a variety of means such as real-time and near-time digital access to new and archived historical observations and data using the Internet and Web-enabled E-Commerce systems, magnetic media (tape and disk), paper copies, peer reviewed journal articles and published papers, conferences, and partnerships with educational institutions to support NOAA's goal of improving mission performance through:

- Increased community knowledge of, use of, and satisfaction with NOAA information that supports local air quality monitoring and forecast programs.
- Increased assistance to international partners to improve response capabilities to weather and water predictions.

<p><b>MISSION GOAL 4. SUPPORT THE NATION'S COMMERCE WITH INFORMATION FOR SAFE, EFFICIENT, AND ENVIRONMENTALLY SOUND TRANSPORTATION</b></p>
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NESDIS' information products and services are essential for safe and efficient transportation and commerce systems, which are crucial to the economic health and public safety of the Nation. NOAA's National Centers for Environmental Prediction require data from NESDIS' environmental observing systems to issue forecasts, warnings and alerts on the state of the environment. Commerce and transportation systems on the water, on the ground, in the air, and in space require this information. NESDIS' centers archive these data and conduct environmental assessments that are required by the

aviation, shipping, railroad, trucking and aerospace industries. Real-time and archived data provide a unique perspective into forecasting and allow warnings to protect lives and property by monitoring, predicting and assessing the impacts of natural and man-made disasters.

For aviation, NESDIS data and services are used to determine the safety of airline routes and flight plans. Unsafe flying conditions stemming from a loss in radio communication and the presence of ash clouds from volcanic activity as well as smoke and heat from large-area wild fires can be determined. As part of the Volcanic Ash Advisory Center, NOAA scientists use satellite data along with ash cloud dispersion models to determine the trajectory of the height of a volcanic ash plume. Based on these data, the Federal Aviation Administration issues warnings to U.S. aircraft operating in the vicinity of volcanic activity and wildfires and coordinates globally to provide guidance for safe operations of all aircraft.

In the marine industry, use of NESDIS data creates fuel savings and reduces risk of damage to ships and cargo by changing ship routes to account for wind driven sea state and ocean current patterns. It also identifies areas favorable to fishing, previews hazardous storm conditions so that advisories can be issued, indicates a window for favorable winter operations before ice closes down shipping lanes, and helps ensure the safety of recreational boating.

Along with the U.S. Coast Guard, U.S. Air Force, and NASA, NESDIS also supports the U.S. and international Search and Rescue system that is credited with saving over 15,000 people worldwide.

#### **OUTCOME MEASURES FOR MISSION GOAL 4:**

- Increased use and effectiveness of environmental information planning for marine, air, and surface transportation systems.

#### **STRATEGIES AND MEASURES OF SUCCESS:**

**Monitor and Observe:** NESDIS will ensure the availability of value-added, cost-effective global Earth-observing systems, integrating satellite, airborne and in-situ (surface: land and ocean) assets that provide critical data and information needed to support NOAA's goal of improving mission performance through:

- Increased reliability, frequency and use of marine, aviation and surface transportation-related observations.

**Understand and Describe:** NESDIS will realize the full potential of current and future satellite and ground based data and information management systems to respond to customer requirements to support NOAA's goal of improving mission performance through:

- Increased capabilities of data acquisition technology, processing and analysis.

**Assess and Predict:** NESDIS will improve and expand products, techniques, and services to increase availability, reliability, and timeliness of observations to support NOAA's goal of improving mission performance through:

- Increased percentage of major U.S. ports where oceanographic "nowcast" (present conditions) and weather and marine forecast models are implemented.
- Increased accuracy and use of weather and marine forecasts to increase efficiency of all land, water, and air transportation systems.

**Engage, Advise and Inform:** NESDIS will ensure that customers have access to data, information, and products through a variety of means such as real-time and near-time digital access to new and archived

historical observations and data using the Internet and Web-enabled E-Commerce systems, magnetic media (tape and disk), paper copies, peer reviewed journal articles and published papers, conferences, and partnerships with educational institutions to support NOAA's goal of improving mission performance through:

- Increased percentage of U.S. ports where oceanographic and weather data are delivered in real time.

### **NOAA's CROSS-CUTTING PRIORITIES:**

**NESDIS is the lead line office for the Integrated Global Environmental Observation and Data Management System Priority and fully supports the other five cross-cutting priorities as described below:**

#### **1. INTEGRATED GLOBAL ENVIRONMENTAL OBSERVATION AND DATA MANAGEMENT SYSTEM - LEAD**

NOAA will work with local, state, regional, national and international partners to develop global-to-local environmental observations and data management for comprehensive, continuous monitoring of coupled ocean/atmosphere/land systems. Improving worldwide environmental observations will enhance NOAA's ability to protect lives and property, enhance economic opportunities, understand climate and promote healthy ecosystems. NOAA will leverage observations from many platforms including satellites, ships, aircraft, buoys, submersibles, radars, climate reference stations, ASOS stations, and radiosondes. NOAA will continue to cooperate with key bilateral partners and play a vital role in the workings of multinational environmental observation coordination mechanisms. NOAA's data management system will provide decision makers with the infrastructure to support easily accessible and timely information services.

By the end of FY 2003, NOAA will develop an agency-wide Strategic Plan for its Observation and Data Management System. Multiple user requirements integrating atmospheric, oceanic, terrestrial, and fresh water observations to advance NOAA's missions will be addressed. In FY04, NOAA will extend this plan to encompass environmental observing systems operated by international and national partners to optimize use of available and planned resources. This investment will directly support the strategies and measures of success under each of NOAA's mission goals.

#### **Strategies and Measures of Success include:**

1. NOAA will develop an Integrated Global Environmental Observation and Data Management System based on user requirements and an integrated architecture.

- Percent of user observation and data management requirements met by system.
- Improved performance (including time lines, reliability and maintainability) for users.
- Increased access to NOAA data sets meeting National Archives and Records Administration Guidelines.

The following milestones will be accomplished within 30 days of schedule in order to enable needed performance improvements:

- Establish NOAA-wide observing requirements.
- Inventory and assess NOAA observation systems capabilities to both maintain critical observations and to eliminate gaps, carried out as a function of requirements.
- Inventory and assess NOAA's data management capability to access, quality control, and archive these observations.
- Develop and implement an architecture process to periodically review existing capabilities and new requirements and capabilities.

- Periodically publish the “state” of NOAA observations and data management systems.
- Establish mechanisms to provide real time and non-real time assessments of the quality of NOAA’s observations.

2. NOAA will promote national and international cooperation in developing this system.

- Increased use of other nations’ organizations’ observation platforms, resources, and assets to meet user observation and data management requirements.
- Increased number of partnerships that promote national and international cooperation in global observations and data management programs.

The following milestones will be accomplished within 30 days of schedule in order to enable needed performance improvements:

- Recognize, leverage, and increase use of observing assets of other nations and other organizations.
- Pursue partnerships that promote cooperation in observations and data management programs.

3. NOAA will promote regional and local cooperation in developing this system.

- Increased use of other regional monitoring and observation platforms, resources, and assets to meet user observation and data management requirements.
- Increased number of partnerships that promote regional and local cooperation in global and coastal observations and data management programs.

**The following five cross-cutting priorities will be fully supported by NESDIS as indicated:**

## **2. ENVIRONMENTAL LITERACY, OUTREACH AND EDUCATION**

NOAA will apply the agency’s wide spectrum of environmental science expertise to establish an environmental literacy program, a comprehensive undertaking to educate present and future generations about the changing earth and its processes. This strategy to improve public response to natural hazards and assist state and local natural resource management will also ensure that decision makers have access to information needed for appropriate response to risks and environmental change.

### **Strategies and Measures of Success include:**

1. NOAA will improve community and public awareness of its mission goals and accomplishments, as well as basic knowledge of the environment and human interactions with it.

- Increased number of favorable public survey scores of NOAA’s role and achievements.

2. NOAA will create an agency-wide mechanism for distributing and using its educational materials, and for measuring outreach effectiveness.

- Increased number of favorable survey scores of NOAA’s performance in delivering accurate, prompt and understandable information.

3. NOAA will actively encourage and promote careers in the environmental sciences.

- Increased number and diversity of college students graduating each year in fields related to ocean, climate, atmospheric, and social sciences.
- Increased number of graduate and Ph.D.- level scientists in environmental sciences graduating from minority-serving institutions.

### **3. SOUND, STATE-OF-THE-ART RESEARCH**

NOAA will support high quality research underpinning NOAA’s environmental analysis, prediction, and ecosystem management missions. The agency will develop and implement the new products, services, and approaches to ecosystem management needed by a nation facing urgent environmental, economic and public safety challenges.

#### **Strategies and Measures of Success include:**

1. NOAA will increase its investments in both short-term and long-term research, and in development of advanced technology to understand, describe, and predict changes in the natural environment.

- Recognized high standards for utility, objectivity, and integrity
- Increased number of recognized new discoveries, findings, or applications

2. NOAA will accelerate the transfer of knowledge and technology into operational use and ecosystem management.

- Increased use of models and assessments among scientists, economists, social scientists, operations, and ecosystem managers inside and outside NOAA.
- Increased transfer of NOAA models, forecasts, products, and services from research into operations and ecosystem management

### **4. INTERNATIONAL COOPERATION AND COLLABORATION**

A rapidly shifting political, cultural and economic world requires that Federal agencies like NOAA – involved in world affairs – cultivate fresh approaches and new services to maintain U.S. leadership in these fields. NOAA will support and promote national policies and interests in ecosystem management, climate change, Earth observation, and weather forecasting, and seek to enable global partners to benefit from this leadership. Such international collaboration in scientific understanding will significantly benefit the American public through economic and social advantages, and the development of services and products to enhance every citizen’s quality of life.

#### **Strategies and Measures of Success include:**

1. NOAA will leverage United Nations Specialized Agency agreements, as well as bilateral and multilateral relationships with individual countries and organizations, to maximize the development and use of NOAA research, environmental science services and environmental management for the mutual benefit of all parties.

- Increased number of new international agreements covering NOAA technical assistance and capacity building transfers.

2. NOAA will promote international consensus and cooperation in support of NOAA’s mission and U.S. foreign policy through multilateral and bilateral conferences and relationships.

- Increased number of organizational objectives achieved through bilateral and multilateral relationships.

## **5. HOMELAND SECURITY**

NOAA core missions of environmental prediction and management are manifested in more than 80 capabilities that support America's efforts to prepare for and, if necessary, respond to terrorist attacks. NOAA is also ready to quickly provide other NOAA assets – ships, aircraft, global observation systems and professional law enforcement officers – to serve the Nation when the need arises.

### **Strategies and Measures of Success include:**

NOAA will expand its support for homeland security, coordinating delivery of its products, services and capabilities to Federal, state, and local emergency managers and responders, and strengthening its own infrastructure to protect agency personnel, facilities, and information services.

- Improved certainty of continuance of operations for critical NOAA services in event of national crises.

## **6. ORGANIZATIONAL EXCELLENCE**

### **Facilities, Infrastructure, Security, Human Capital and Administrative Services**

Consistent with the President's Management Agenda, this strategic plan provides a framework facilitating enhanced NOAA administrative services, including financial performance, human resources, information technology and electronic government, grants management, competitive sourcing, and budget and performance integration. These improvements will center on customer-focused, interdependent and mission-aligned programs, as well as integrated administrative infrastructure, stable funding streams and lower overall costs of acquisition, operation and maintenance.

### **Strategies and Measures of Success include:**

1. NOAA will expand workforce training, incentives, succession planning and other administrative tools available to recruit and retain a skilled workforce.

- Complete a Human Resources Strategic Plan.

2. NOAA will improve processes for requirements development, construction processes, consolidation of services and facilities and increase funding for deferred maintenance.

- Complete a Facilities Management Strategic Plan.
- Increase the number of facilities with improved collocation of NOAA services and/or strategic partners.